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A.D. 1873, 7th JULY. N° 2343.

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**Instrument for Treating Deafness, &c.**

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**LETTERS PATENT** to Francis Robert Houghton, of No. 2, Onslow Villas, Richmond, in the County of Surrey, Surgeon Aurist, for the Invention of “**AN IMPROVED INSTRUMENT OR APPLIANCE FOR TREATING AND CURING DEAFNESS AND NOISES IN THE HEAD.**”

Sealed the 6th January 1874, and dated the 7th July 1873.

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**PROVISIONAL SPECIFICATION** left by the said Francis Robert Houghton at the Office of the Commissioners of Patents, with his Petition, on the 7th July 1873.

I, FRANCIS ROBERT HOGHTON, of No. 2, Onslow Villas, Richmond, 5 in the County of Surrey, Surgeon Aurist, do hereby declare the nature of the said Invention for “**AN IMPROVED INSTRUMENT OR APPLIANCE FOR TREATING AND CURING DEAFNESS AND NOISES IN THE HEAD,**” to be as follows :—

This Invention relates to a peculiar instrument or appliance which I 10 term an “**Electro-galvanic Sound Conductor**” for treating and curing deafness and noises in the head.

The said instrument or appliance consists essentially of two short and tapered tubes, one of which is composed of copper and the other of zinc.



*Hoghton's Improved Instrument for Treating Deafness, &c.*

The zinc tube is inserted concentrically within the outer or copper tube or vice versa, and a space is left between the two tubes, which space is to be filled with an acid or other suitable solution, as an exciting fluid for generating an electro-galvanic action in the instrument or appliance.

A concave disc or shield is secured to the outer end of the outer tube 5 for the purpose of preventing the instrument (which is intended to be inserted into the ear so as to communicate with the membrane of the drum) from entering too far therein.

The advantages of this instrument are that it occupies but little space, its construction and action is simple and efficient, and most effectual in 10 its results, not only conveying sound to the drum, but also keeping up a continual galvanic and curative action.

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**SPECIFICATION** in pursuance of the conditions of the Letters Patent, filed by the said Francis Robert Hoghton in the Great Seal Patent Office on the 7th January 1874. 15

**TO ALL TO WHOM THESE PRESENTS SHALL COME, I, FRANCIS ROBERT HOGHTON, of No. 2, Onslow Villas, Richmond, in the County of Surrey, Surgeon Aurist, send greeting.**

**WHEREAS** Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Seventh day of July, in the year of 20 our Lord One thousand eight hundred and seventy-three, in the 37th year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Francis Robert Hoghton, Her special license that I, the said Francis Robert Hoghton, my executors, administrators, and assigns, or such others as I, the said Francis Robert 25 Hoghton, my executors, administrators, or assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention 30 for "AN IMPROVED INSTRUMENT OR APPLIANCE FOR TREATING AND CURING DEAFNESS AND NOISES IN THE HEAD," upon the condition (amongst others) that I, the said Francis Robert Hoghton, my executors or adminis-



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*Hoghton's Improved Instrument for Treating Deafness, &c.*

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trators, by an instrument in writing under my hand and seal, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar  
5 months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Francis Robert Hoghton, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained  
10 in and by the following statement, reference being had to the accompanying Drawings, and to the letters and figures marked thereon, that is to say :—

My said Invention relates to a peculiar instrument or appliance which I term an “ Electro-galvanic Sound Conductor ” for treating and curing  
15 deafness and noises in the head.

The said instrument or appliance consists essentially of two short and tapered tubes, one of which is composed of copper and the other of zinc. The zinc tube is inserted concentrically within the outer or copper tube or vice versa, and a space is left between the two tubes, which space is to  
20 be filled with an acid or other suitable solution, as an exerting fluid for generating an electro-galvanic action in the instrument or appliance.

A concave disc or shield is secured to the outer end of the outer tube for the purpose of preventing the instrument, which is intended to be inserted into the ear so as to communicate with the membrane of the  
25 drum, from entering too far therein.

The advantages of this instrument is that it occupies but little space, its construction and action is simple and efficient, and most effectual in its results, not only conveying sound to the drum, but also keeping up a continual galvanic and curative action.

30 And in order that my said Invention may be fully understood I shall now proceed more particularly to describe the same, and for that purpose shall refer to the several Figures on the annexed Sheet of Drawings, the same letters of reference indicating corresponding parts in all the Figures.

35 Figure 1 of my Drawings represents a front elevation of my improved instrument; Figure 2 is a side elevation of the same; Figure 3 is a



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*Hoghton's Improved Instrument for Treating Deafness, &c.*

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detail of the tubes showing the inner tube drawn out a little way from the outer tube, and shewing the relative positions of the tubes before they are soldered together at their ends; and Figure 4 shows the mode of applying the said instrument.

*a* is a disc or shield of copper or other suitable material, and of a 5 concave form, which is secured to the outer tube *b* to prevent the instrument from penetrating too far into the ear; *c* is the inner tube which leads to the membrane of the drum of the ear and conveys the sound. One of these tubes should be of copper and the other of zinc or equivalent metals. The annular space *d* enclosed between the two tubes *b* and *c* 10 is closed at both ends, and a small opening is left at *e*, Figure 1, communicating with this space, through which the acid solution or other exerting liquid is introduced into the said space, this hole being afterwards plugged up in any convenient manner. The said instrument having been charged with acid solution or any suitable exerting liquid 15 capable of producing galvanic action is inserted into the ear as shown in Figure 4, and operates as an excellent sound conveyer and galvanic stimulant to the ear.

Having now described and particularly ascertained the nature of my said Invention, and in what manner the same is or may be used or 20 carried into effect, I would observe in conclusion that what I consider to be novel and original and therefore claim as the Invention secured to me by the herein-before in part recited Letters Patent is, the combination of two concentric tubes of copper and zinc, or other equivalent metal, respectively having an intervening space for the reception of acid 25 solution or other exerting liquid, when constructed and applied substantially in the manner and for the purpose herein-before described and illustrated by my Drawings.

In witness whereof, I, the said Francis Robert Hoghton, have to this my Specification set my hand and seal, the Seventh day 30 of January One thousand eight hundred and seventy-four.

FRANCIS ROBERT HOGHTON. (L.S.)

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A.D.1873. JULY 7. N<sup>o</sup> 2343.  
HOGHTON'S SPECIFICATION.

FIG. 1.

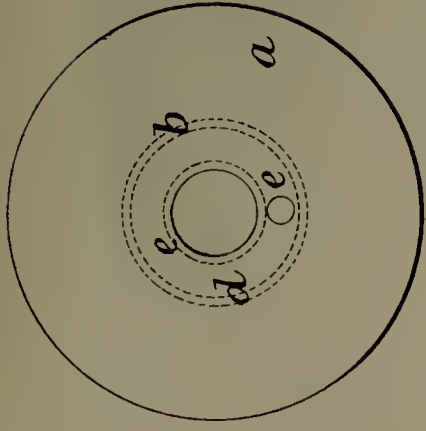


FIG. 2.

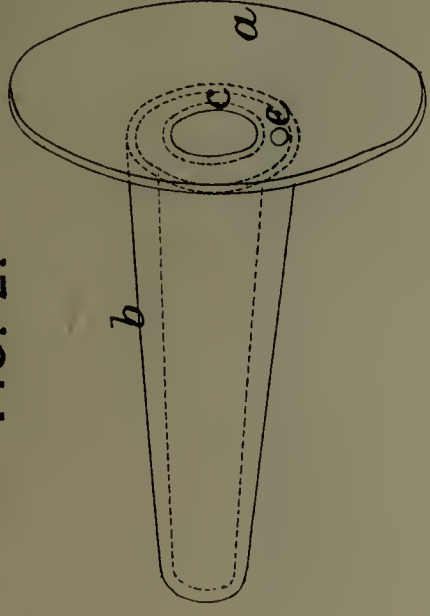


FIG. 4.

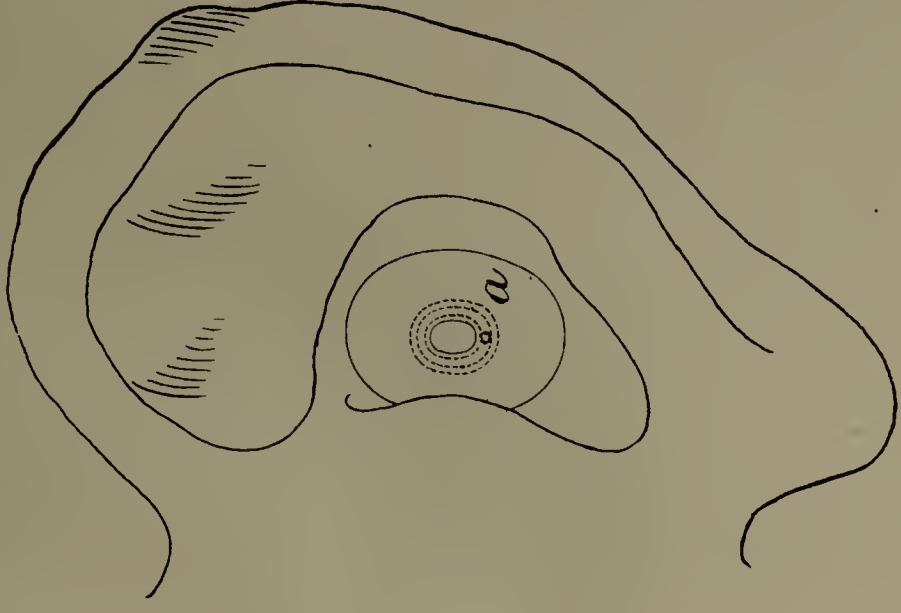
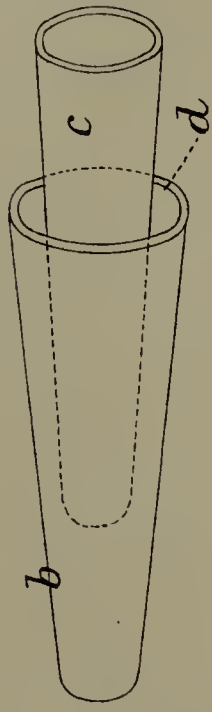


FIG. 3.



*The filed drawing is partly colored.*

Drawn on Stone by Malby & Sons.

